European Nuclear Physics Conference 2025



Contribution ID: 113

Type: Oral Presentation

Retention effects in the Szilard-Chalmers reaction for solutions of ethyl iodide and ethanol

This work explores the effects of dilution on the retention phenomena of radioactive atoms produced in the Szilard-Chalmers reaction, with a minimum level of gamma radiation coming from the Am-Be source. For the first time, we demonstrate that the 128-I extraction yield, after a sizable post-irradiation time, can be maximized with a suitable dilution. The origin of this curious effect is still unclear; while a role played by some contaminant can not be excluded, an alternative suggestion could originate from evolution of intermolecular interactions recently observed when alkyl-iodides are mixed with ethanol.

Author: REDIGOLO, Luigi (University of Catania, Italy / INFN - Sezione di Catania, Italy)

Co-authors: Dr MASSARA, Antonio (INFN - Laboratori Nazionali del Sud); Prof. DELL'AQUILA, Daniele (University of Napoli, Italy / INFN - Sezione di Napoli, Italy); Dr SAPIENZA, Giuseppe (INFN - Laboratori Nazionali del Sud); Prof. LOMBARDO, Ivano (University of Catania, Italy / INFN - Sezione di Catania, Italy); URSINO, Martina (INFN - Laboratori Nazionali del Sud); LEANZA, Renata (INFN - Laboratori Nazionali del Sud); Dr RUSSO, Salvatore (INFN - Laboratori Nazionali del Sud)

Presenter: REDIGOLO, Luigi (University of Catania, Italy / INFN - Sezione di Catania, Italy)

Session Classification: Parallel session

Track Classification: Nuclear Physics Applications